The Ivory Federation

Propps Hall Junior, Infant & Nursery School Springhead Infant & Nursery School Rushcroft Primary School

DESIGN & TECHNOLOGY POLICY

RATIONALE

Design and technology is a valuable, inspiring and practical subject, it prepares our children to deal with tomorrow's rapidly changing world. Using creativity and imagination, it encourages our children to become independent, creative problem solvers. Design and technology enables the children to identify needs and opportunities and to respond to them by developing a range of ideas and by making products and systems. Through the study of design and technology, the children combine practical skills with an understanding of aesthetic, social and environmental issues, as well as purpose and industry enterprise.

We seek to develop children and young people's practical designing and making ability, allowing the children to reflect on and evaluate past and present technology, it's uses and impacts.

PURPOSE

A high-quality curriculum for design should engage, inspire and challenge the children, equipping them with the knowledge and skills to experiment, invent and create their own products and designs. Good teaching in design & technology empowers the children to see the world as a place of opportunity.

The 2014 National Curriculum for art and design aims to ensure that all children:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world;
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others;
- understand and apply the principles of nutrition and learn how to cook.

Alongside the above purpose of the National Curriculum, we aim to ensure that all our children:

- have the opportunity to express their creativity, resourcefulness and imagination;
- are exposed to a cross-curricular framework that enables the children to draw upon subject knowledge and skills within Mathematics, Science, History, Computing and Art;
- learn to take risks, be reflective, innovative, enterprising and resilient.
- design and make products that solve real and relevant problems within a variety of contexts.

BROAD GUIDELINES

CURRICULM ORGANISATION

Children are taught through a thematic curriculum, with the teaching of design and technology being based on innovation, resourcefulness and problem-solving. The overarching theme is changed each half term to ensure children are exposed to many different topics throughout their time at our school, where individual subjects, such as design and technology, can be taught within a purposeful context.

The long-term curriculum plan details the overarching topic each half term and the curriculum subjects being taught within it. The curriculum content such as mechanism or food technology is also identified within the long-term plan.

The medium-term plans provide teachers with the specific units of learning and desirable learning outcomes for each subject. The learning intentions and outcomes directly link to the overarching theme and ensure good curriculum coverage and knowledge acquisition for each subject. Links to other areas

of the curriculum that enhance the children's understanding of design technology are identified and incorporated into each document. Each topic is taught as a block of learning each half term.

The progression of skill and knowledge within design and technology, throughout the half termly topic, throughout each year group and throughout the primary phase as a whole, is detailed in the 'Design and Technology Mapping and Progression Document'. In order for children to receive a high-quality design and technology education, it is essential that teachers build on previous curriculum content to ensure the skills and knowledge being taught are progressive and based on a secure foundation where acquisition of new content can be formed.

The acquisition of key vocabulary is planned and mapped out for each year group and each block of learning. The vocabulary is specific to the new skill being taught and is progressive as the children move through the year groups and through the design technology curriculum. (Appendix 3)

The thematic curriculum also extends to the Early Years Foundation Stage and the children are taught design technology through 'Expressive Art and Design'. The characteristics of effective learning are the ways in which each child engages with other people and their environment; playing and exploring, creating and thinking critically, observing and solving problems, making decisions and talking about why they have made their decisions. All of these characteristics underpin learning and development and support each child to remain an effective and motivated learner in design and technology.

All children have the opportunity to learn about food technology. Acquiring knowledge about the wide range or foods available and their origins. The children learn to use a range of tools, explore a wide range of techniques, including the variety of ways in which food can be prepared. The children experience cooking using a heat source, which includes roasting, boiling and frying.

Understanding the use of mechanisms and their function in everyday society forms an important part of our curriculum. The children learn how things move through the use of sliders, levers, axels, pulleys and gears. The children explore product design both with and without the use of electricity. The children learn about purpose, functionality and target audiences when designing and creating products. In addition, the children learn about the importance of packaging including both the positive and negative impact.

Learning about structures is woven into both our art and design curriculum, structures appears on both curriculum maps. Within the design curriculum the children learn about the purpose of design in relation to architecture, they will explore how structures made stronger and apply their understanding of how to strengthen, stiffen and reinforce structures.

STRUCTURE OF LESSONS

Design and technology should be taught through first-hand and practical experience. Teachers should use a variety of approaches that are matched to the activity and the ability of the children. Effective teacher modelling should demonstrate new skills and techniques to their pupils. Children should be then given the chance to explore and experiment with the new skill being taught, allowing space for innovation, creativity and problem-solving.

It is important that teachers are clear about the skill and technical knowledge they are developing in their lessons, sequencing the learning purposefully and providing the children with the space and time to explore the content practically.

All design and technology units of learning should provide the children with the opportunity to create prototypes, a sample or model created to test their ideas and offer the children the opportunity to evaluate their product or design.

It is good practice to encourage the children to work independently and in teams, to explore their ideas and present their designs to others**.** Children should see that their ideas are valued, celebrated and displayed around the school.

The learning sequence will offer the children the opportunity to design, make and evaluate as the children experiment with the technical elements of their topic, as follows:

1) Design

The children will design purposeful, functional, appealing products for themselves and other users based on design criteria that are fit for purpose and aimed at particular groups or individuals. Pupils will generate, develop model and communicate their ideas through discussions.



2) Make

The children will select from and use a range of tools and equipment to perform practical tasks. They will select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics and functional properties.



3) Evaluate

The children will explore, evaluate, investigate and analyse a range of existing products. They will evaluate their ideas and products against design criteria and consider the views of others to improve their work.



4) Technical knowledge

The children will build structures, explore how they can be made stronger and apply their understanding of how to strengthen, stiffen and reinforce structures. They will explore and use mechanical systems in their products. In KS2 they will understand and use electrical systems in the products (for example series circuits incorporating switches, bulbs, buzzers and motors)



Teachers will carefully select the key vocabulary to teach and use it throughout their teaching. They will encourage its use by the children when discussing both their learning and their designs.

Additionally, teachers will encourage children to see themselves as designers and use the 'I am a designer because…' statements. (See appendix 2 for statements specific year group terminology).

Progression over time and in lessons is to be recognised as an essential part of our design technology offer and it is the teacher's responsibility to ensure that learning is progressive, where prior knowledge and skills competency is recognised as a foundation to build upon. All children should complete at least one final piece for each unit of MTO unit of learning, supported by practical exploration each lesson. This can be in the form of exploratory pieces (prototypes) or smaller 'finished' pieces that consolidate a progression of skills and techniques. Final pieces produced should be based on the current topic but have a focus on developing the children's design technology skills.

Design and technology attainment and progress is assessed through both formative and summative assessment processes using a wide range of sources such as sketchbooks and pupil voice. Verbal feedback supported by teacher modelling, when given in a timely manner is most effective in teaching, allowing children to reflect upon skills application and techniques and adjust and adapt appropriately as they are learning.

USE OF RESOURCES

There are a range of design and technology tools and materials available to school, some of which are stored in individual classrooms. There are some communal resources available for all to use and these will be maintained and monitored by the creative arts leader. Resources are the collective responsibility for the whole school and children are encouraged to treat resources carefully and safely.

Children are expected to, where appropriate, choose their own equipment and set up such equipment for practical lessons, and clean up at the end of a lesson themselves. This should be done under adult supervision with health and safety requirements in mind. By doing so, they:

- *make sensible choices about which equipment to use;*
- *treat the equipment with care;*
- *use the equipment with their own, and others safety in mind;*
- *become independent learners.*

More complex tools will be selected and organised by adults and used with close supervision, in some cases this will require 1:1 supervision. Risk assessments are to be in place before the children use more complex tools and ongoing risk assessment is to be carried out throughout the lesson duration.

ROLE OF THE CREATIVE ARTS LEADER

A good leader ensures that all pupils can develop their understanding of design and technology and learn the skills needed to work like a designer. Leaders assist the teachers in developing their confidence to deliver a practical, engaging curriculum with access to appropriate resources.

They plan improvement that:

- develops their school's design technology curriculum, raises standards for children and supports colleagues to teach better lessons.

Design technology leaders:

- keep up to date with broad developments in design and technology education, and consider how to share these with colleagues and pupils where appropriate;
- are aware of, and take responsibility for, developments that affect school design and technology policy, including health and safety;
- are aware of, and take responsibility for, addressing gender stereotyping in lessons and enrichment activities;

- implement the whole-school vision for design and technology, and advise and support colleagues on the pedagogy and appropriate resources to achieve it;
- ensure that they access continuing professional development (CPD) for leadership of design and technology, and that colleagues access CPD to address their requirements too;
- monitor achievement and attainment in design technology;
- are members of the Design and Technology Association (https://www.data.org.uk/for-education/primary/) , and they use the database to inform and improve their own and the practice of others.

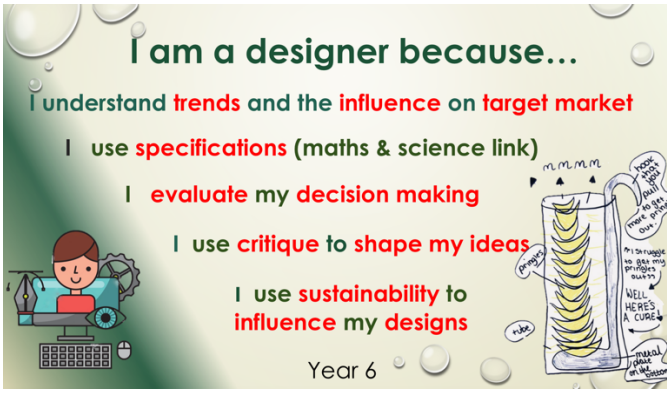
CONCLUSION

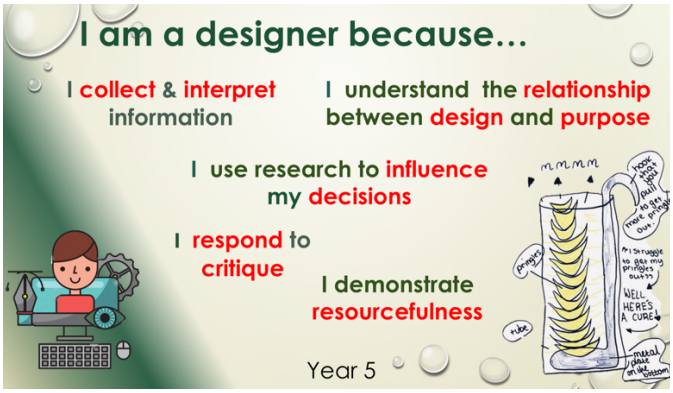
The successful implementation of this policy will assist in ensuring our children are exposed to a quality curriculum that strives to ignite and enthuse them for life-long learning. The children will have developed their creativity and imagination, and become more independent and creative problem solvers. Teachers will have the structure in which to teach the core content of the National Curriculum and Early Years Foundation Stage which will allow them to ensure children have the skills needed to become confident practitioners in the future.

Policy written April 2021

Appendix 1

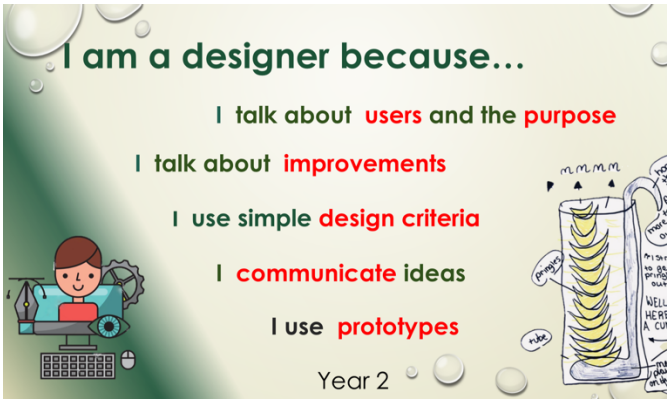
I am a designer because…

















Appendix 2

Key Vocabulary Mats

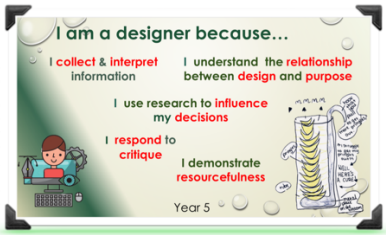
FOOD TECHNOLOGY (EXTREME EARTH)
nutrition seasonality traditional roast boil allergy availablity baste season



YEAR SIX
DESIGN TECHNOLOGY VOCABULARY

STRUCTURES (GROOVY GREECE)
architect architecture column intricate doric ionic corinthian orders frieze pediment computer aided design

MECHANISMS (WONDERFUL WATER)
gear shaft belt cable pulley mechanical component mechanism system



YEAR FIVE
DESIGN TECHNOLOGY VOCABULARY

PACKAGING (RUBBISH RECYCLING)
impact sustainable pollution non-renewable fossil fuel global warming landfill green-house effect carbon footprint biodegradable recycling solution



ELECTRICAL PRODUCTS (DRAGON'S DEN)
desirable consumer innovative manufacture functionality target market survey

YEAR FOUR
DESIGN TECHNOLOGY VOCABULARY

FOOD TECHNOLOGY (LET'S CREATE)
heat source temperature recipe method hob oven fry utensil scales preparation

MECHANISMS (LIGHT, CAMERA, ACTION)
linkage bar fixed pivot loose pivot connecting rod criteria function

MECHANISMS (DRAGON'S DEN)
cross-sectional exploded diagram aesthetic accessory annotate pattern

YEAR THREE
DESIGN TECHNOLOGY VOCABULARY



YEAR TWO
DESIGN TECHNOLOGY VOCABULARY

FOOD TECHNOLOGY (WHERE DID IT COME FROM?)
grown reared caught processed source origin grate heat source

MECHANISMS (TRADGEDIES)
axel rod rotate fixed free user purpose diagram





MECHANISMS (TOYS)
slider lever rigid pivot prototype backwards forwards

FOOD TECHNOLOGY (GLORIOUS FOOD)
prepare portion peel slice cut chop

YEAR ONE
DESIGN TECHNOLOGY VOCABULARY



MECHANISMS (PEOPLE WHO HELP US)
split pin movement joint bend

RECEPTION
DESIGN TECHNOLOGY VOCABULARY

FOOD TECHNOLOGY (FANTASY)
sugar salt fruit vegetables calcium balanced diet

FOOD TECHNOLOGY (AUTHORS)
hygiene safety whisk spoon mix bake cook ingredient bowl

NURSERY
DESIGN TECHNOLOGY VOCABULARY



FOOD TECHNOLOGY (OURSELVES)
healthy unhealthy meal fruit milk water snack

MECHANISMS (COUNTRIES)
transport wheel boat aeroplane car train

FOOD TECHNOLOGY (TRADITIONAL TALES)
sense taste smell texture

FOOD TECHNOLOGY (COUNTRIES)
same different sweet sour